

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

Frontiers in Soil Science Research

Workshop

December 12-14, 2005

The National Academies, Washington, DC

The National Academies is convening an international workshop of experts in soil science and associated disciplines to identify emerging research opportunities and expected advances in soil science, particularly in the integration of biological, geological, chemical, and information technology sciences. The workshop will be held at the National Academy of Sciences building at 2100 C Street, NW, Washington, DC, on December 12-14, 2005. An agenda and list of speakers can be found at the workshop website: <http://www7.nationalacademies.org/soilfrontiers>.

An important challenge in soil science is the need for interdisciplinary research involving classical soil science sub-disciplines, namely soil chemistry, soil physics, soil biology, soil mineralogy, and pedology. While basic research provides an understanding of fundamental soil processes, increasing global trends in land transformation, related environmental considerations, and policy issues require interdisciplinary approaches. To successfully address major research needs, soil scientists must collaborate with each other and with scientists in related disciplines. The workshop will endeavor to encourage interaction among the basic fields of soil science as well as with other scientific disciplines.

Soil science is also at a critical threshold in identifying new areas for research. Emerging topics – such as climate change, carbon sequestration, water quality, vadose zone transport of nutrients and contaminants, and food security – need strategic research on soil processes. New technologies and sensors developed in other disciplines can provide opportunities in soil science to enhance problem-solving abilities and integrate knowledge from associated disciplines (i.e., microbiology, hydrology, ecology, environmental science, geochemistry, geology, atmospheric sciences).

The workshop on Frontiers in Soil Science Research will address the emerging research opportunities in soil science and the integration of the biological, physical, geological, and chemical sciences within soil science. The workshop will:

- 1) Identify particular research priorities and potential breakthroughs within soil science;
- 2) Identify the interdisciplinary and cross-disciplinary research areas in which soil science is involved, particularly in the field of biogeoscience; and
- 3) Identify technological and computational needs to advance soil science.

Funding for the workshop has been received from the National Science Foundation, the Department of Energy, the U.S. Department of Agriculture-Agricultural Research Service, and the Soil Science Society of America.

This workshop is free and open to the public, but space may be limited so registration is required. For registration and further information, visit <http://www7.nationalacademies.org/soilfrontiers>. A workshop report will be published by the National Academies Press in 2006.

Workshop organizing committee: Chuck Rice, Kansas State University (chair); Paul Bertsch, University of Georgia, Athens; Johan Bouma, Wageningen University, Netherlands; Jennifer Harden, U.S. Geological Survey; Jerry L. Hatfield, USDA-ARS, National Soil Tilth Laboratory; Julie Jastrow, Argonne National Laboratory; William Jury, University of California, Riverside; Joaquin Ruiz, University of Arizona.

For further information, contact Mariza Silva (msilva@nas.edu) at the National Academies.